

MICROFEATURE WORKPIECE PROCESSING APPARATUS AND METHODS  
FOR CONTROLLING DEPOSITION OF MATERIALS ON MICROFEATURE  
WORKPIECES

ABSTRACT OF THE DISCLOSURE

The present disclosure provides methods and apparatus useful in depositing materials on batches of microfeature workpieces. One implementation provides a method in which a quantity of a first precursor gas is introduced to an enclosure at a first enclosure pressure. The pressure within the enclosure is reduced to a second enclosure pressure while introducing a purge gas at a first flow rate. The second enclosure pressure may approach or be equal to a steady-state base pressure of the processing system at the first flow rate. After reducing the pressure, the purge gas flow may be increased to a second flow rate and the enclosure pressure may be increased to a third enclosure pressure. Thereafter, a flow of a second precursor gas may be introduced with a pressure within the enclosure at a fourth enclosure pressure; the third enclosure pressure is desirably within about 10 percent of the fourth enclosure pressure.